

**REMARKS**

**I. INTRODUCTION**

Claim 22 has been cancelled, without prejudice. Claims 4, 12-14, 18, 28 -31 and 33-35 have been amended above to remove minor informalities therefrom, and not for any reasons associated with patentability thereof. New claim 36 has been added. Accordingly, claims 1, 4, 6-15, 18-20, 23, 24 and 27-36 are now under consideration in the present application. Provided above, please find a claim listing indicating the current amendments to the previously-pending claims, cancellation of claim 22 and claim addition on separate sheets so as to comply with the requirements set forth in 37 C.F.R. § 1.121. It is respectfully submitted that no new matter has been added.

Applicants appreciate Examiner's indication that claims 1, 6-11, 23, 24 and 27 are allowed.

**II. INFORMATION DISCLOSURE STATEMENT**

In the Office Action, the Examiner confirms that the information submitted with the Information Disclosure Statements filed for the above referenced application have been considered as to the merits. Applicants appreciate the consideration of all submitted materials by the Examiner.

However, the Examiner then requests Applicants to provide a concise explanation of why the information is being submitted and how it is understood to be relevant. This request has been made by the Examiner apparently because of a large number of documents submitted for this application. (See Final Office Action, p. 2, second paragraph).

It is well established that Applicants are only required to disclose to the U.S. Patent and Trademark Office (the "Patent Office") "all information known to ... [all] individual[s] identified in 37 C.F.R. 1.56(a)] to be material to patentability ... [of the claims of the application as defined in 37 C.F.R. 1.56]." 37 C.F.R. 1.56(a). There is no requirement in this section or any other section of 37 C.F.R. to specifically identify which references (and/or parts thereof) Applicants deem to be material to patentability of the claims pending in the above-identified application. Indeed, while 37 C.F.R. 1.56(a) provides that "[t]here is no duty to submit information which is not material to the patentability of any existing claim," there is nothing in this section which precludes the submission of any information which may not be material to the patentability of any pending claims in the subject application.

Clearly, Applicants are under no known duty to specifically identify to the Patent Office which references (and/or portions thereof) are material to the patentability of any pending claim of this application. Indeed, Applicants clearly complied with the requirements set forth in 37 C.F.R. § 1.56 by providing to the Patent Office all references which may relate to the claims of the above-referenced application, whether they are material or immaterial to the patentability of any of the pending claims.

Further, because Applicants submitted a large number of references and pieces of information, such fact does not relieve the duty on the Patent Office to diligently assess each such reference as its applicability to the pending claims of the above-identified application. Applicants submitted all reference and information for the present application in full compliance with the

laws of the United States and 37 C.F.R. to appropriately bring such references to the attention of the Patent Office. With such task accomplished successfully, the Patent Office has a duty to determine the applicability of such references to the pending claims, and inform applicant of the same. This duty cannot be removed when there are a large number of submitted references and information.

Thus, Applicants assert that any the above-referenced statement by the Examiner regarding the alleged impropriety of the previously-submitted Information Disclosure Statements for the present application is inappropriate, and should be withdrawn.

### **III. OBJECTION TO CLAIM 22**

Claim 22 stands objected to as being a substantial duplicate of claim 1. As the Examiner shall ascertain, claim 22 has been cancelled above, without prejudice. Accordingly, the objection to claim 22 contained in the Office Action is now moot, and should therefor be withdrawn.

### **IV. REJECTION UNDER 35 U.S.C. §112 SHOULD BE WITHDRAWN**

Claims 4, 12-20, 28-31 and 33-35 stand finally rejected under 35 U.S.C. §112, second paragraph as allegedly being indefinite. As the Examiner shall ascertain, claims 4, 12-14, 28 -31 and 33-35 have been amended above but not for any reasons relating to patentability thereof. In particular, these claims have been amended only to remove minor informalities therefrom, and to address certain comments provided by the Examiner in the Final Office Action.

Accordingly, the rejection of claims 4, 12-20, 28-31 and 33-35 under 35 U.S.C. §112, second paragraph should be withdrawn.

**V. REJECTIONS UNDER 35 U.S.C. §§102 and 103 SHOULD BE WITHDRAWN**

Claims 12 and 13 stand finally rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,565,985 issued to Knüttel (the “Knuttel Patent”). Claims 12-14 stand finally rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 6,014,214 issued to Li (the “Lee Patent”). Claims 12, 13 and 32 stand finally rejected under 35 U.S.C. §102(b) as allegedly being anticipated by International Publication No. WO 01/388820 which corresponds to U.S. Patent No. 6,806,963 issued to Waelti et al. (the “Waelti Publication”). Claims 14, 15 and 18-20 apparently stand finally rejected under 35 U.S.C. §103(a) as allegedly being obvious over the Knuttel Patent. Claims 33-35 stand finally rejected under 35 U.S.C. §103(a) as allegedly being obvious over the Waelti Publication.

Applicants respectfully assert that the Knuttel Patent fails to teach, suggest or disclose the subject matter recited in independent claims 12 and 14 and the claims which depend therefrom, that the Lee Patent fails to teach, suggest or disclose the subject matter recited in independent claims 12 and 14 and claim 13 which depends from claim 12, and that the Waelti Publication fails to teach, suggest or disclose the subject matter recited in independent claims 12 and 32 and the claims which depend therefrom for at least the following reasons.

In order for a claim to be rejected as anticipated under 35 U.S.C. § 102, each and every element as set forth in the claim must be found, either

expressly or inherently described, in a single prior art reference. Manual of Patent Examining Procedures, §2131; *also see Lindeman Maschinenfabrik v. Am Hoist and Derrick*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

Under 35 U.S.C. § 103(a), a person is not entitled to a patent even though the invention is not identically disclosed or described as set forth in §102, “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103(a).

The objective standard for determining obviousness under 35 U.S.C. § 103, as set forth in *Graham v. John Deere, Co.*, 383 U.S. 1 (1966), requires a factual determination to ascertain: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; and (3) the differences between the claimed subject matter and the prior art. Based on these factual inquiries, it must then be determined, as a matter of law, whether or not the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the alleged invention was made. *Graham*, 383 U.S. at 17. Courts have held that there must be some suggestion, motivation or teaching of the desirability of making the combination claimed by the applicant (the “TSM test”). *See In re Beattie*, 974 F.2d 1309, 1311-12 (Fed. Cir. 1992). This suggestion or motivation may be derived from the prior art itself, including references or disclosures that are known to be of special interest or importance in the field, or from the nature of the problem to be solved. *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573 (Fed. Cir. 1996).

Although the Supreme Court criticized the Federal Circuit's application of the TSM test, see *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, (2007) the Court also indicated that the TSM test is not inconsistent with the *Graham* analysis recited in the *Graham v. John Deere* decision. *Id.*; see *In re Translogic Technology, Inc.*, No. 2006-1192, 2007 U.S. App. LEXIS 23969, \*21 (October 12, 2007). Further, the Court underscored that "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR*, 127 S. Ct. at 1741. Under the precedent established in *KSR*, however, the presence or absence of a teaching, suggestion, or motivation to make the claimed invention is merely one factor that may be weighed during the obviousness determination. *Id.* Accordingly, the TSM test should be applied from the perspective of a person of ordinary skill in the art and not the patentee, but that person is creative and not an automaton, constrained by a rigid framework. *Id.* at 1742. However, "the reference[s] must be viewed without the benefit of hindsight afforded to the disclosure." *In re Paulsen*, 30 F.3d 1475, 1482 (Fed. Cir. 1994).

The prior art cited in an obviousness determination should create a reasonable expectation, but not an absolute prediction, of success in producing the claimed invention. *In re O'Farrell*, 853 F.2d. 894, 903-04 (Fed. Cir. 1988). Both the suggestion and the expectation of success must be in the prior art, not in applicant's disclosure. *Amgen, Inc. v. Chugai Pharmaceutical Co., Ltd.*, 927 F.2d 1200, 1207 (Fed. Cir. 1991) (citing *In re Dow Chem. Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988)). Further, the implicit and inherent teachings of a prior art

reference may be considered under a Section 103 analysis. See *In re Napier*, 55 F.3d 610, 613 (Fed. Cir. 1995).

Secondary considerations such as commercial success, long-felt but unsolved needs, failure of others, and unexpected results, if present, can also be considered. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983). Although these factors can be considered, they do not control the obviousness conclusion. *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988).

A. Claim 12 and Dependent Claim(s)

Applicants' invention, as recited in amended independent claim 12, relates to an apparatus for irradiating a sample, which comprises, *inter alia*:

- a) an interferometer forwarding an electromagnetic radiation; and
- b) a sample arm receiving the electromagnetic radiation, the sample arm including an arrangement which is configured to produce at least two radiations from the electromagnetic radiation so as to irradiate the sample, and to delay a first radiation of the at least two radiations with respect to a second radiation of the at least two radiations, **wherein the delay of a path of the first radiation compared to a path of the second radiation is at least 500µm in air.**

Applicants respectfully assert that the Knuttel Patent in no way teaches or suggests that **a delay of a path of a first radiation produced in a sample arm compared to a path of a second radiation produced in the sample arm is at least about 500µm in air**, as recited in amended independent claim 12 of the above-identified application.

In the Final Office Action, the Examiner again admits that the Knuttel Patent fails to disclose any range of the delay of a path of the first radiation as compared to a path of the second radiation is 500µm in air as recited in amended independent claim 12. (See Final Office Action, p. 5, last paragraph). However, the Examiner believes that the range "'at least about' will encompass all possible ranges, including the range covered by [the] Knuttel [Patent]." (*Id.*) Applicants respectfully disagree.

As Applicants previously stated, the disclosure of the Knuttel Patent does not deal with having a large depth, but only having a *large field of view* in the depth direction. It appears that based on Applicants' comments contained in the prior response, the Examiner effectively admitted that the Knuttel Patent provides absolutely no teaching or suggestion of having the delay of the path of the first radiation produced in the sample arm compared to the path of a second radiation produced in the sample arm that is at least about 500µm in air, as recited in amended independent claim 12. Thus, the Knuttel Patent does not disclose any path lengths whatsoever. Thus, the Examiner statement that the Knuttel Patent encompass all possible ranges including the recited range of claim 12 (i.e., **a delay of a path of a first radiation produced in a sample arm compared to a path of a second radiation produced in the sample arm is at least about 500µm in air**) is factually incorrect, at least because there is no ranges disclosed in the Knuttel Patent to even compare them to the recitations of independent claim 1.

Further, the Examiner provides similar contentions regarding the Lee Patent and the Waelti Publication as allegedly disclosing the subject matter



recited in independent claim 12. Indeed, the Examiner further admits that both the Lee Patent and the Waelti Publication fail to disclose any range of the delay of a path of the first radiation as compared to a path of the second radiation is 500µm in air as recited in amended independent claim 12. (See Final Office Action, p. 6, Ins. 4-5 and 15). Then, the Examiner makes the same allegation as provided above with reference to the Knuttel Patent, i.e., that the range “at least about” will encompass all possible ranges, including the range covered by each of these references. (See *id.*, p 6, Ins. 5-6 and 15-16). For at least the same reasons as provided above for the Knuttel Patent, Applicants respectfully assert that the Lee Patent and the Waelti Publication fail to disclose that **a delay of a path of a first radiation produced in a sample arm compared to a path of a second radiation produced in the sample arm is at least about 500µm in air**, as recited in independent claim 1.

It is respectfully asserted that the above recitation (in independent claim 1) of the delay of the path of the first radiation produced in a sample arm compared to a path of a second radiation produced in the sample arm is at least about 500µm in air can be important. This is because such number/range can be, e.g., an expected minimum penetration depth in tissue. A depth smaller than that associated with such claimed features would disadvantageously overlap the electro-magnetic radiation provided on the sample. Further, the above recitation of a delay of a path of a first radiation produced in a sample arm compared to a path of a second radiation produced in the sample arm is at least about 500µm in air, as recited in claim 1, is well understood by those having ordinary skill in the art.

Thus, for at least these reasons, Applicants respectfully submit that the Knuttel Patent, the Lee Patent and the Waelti Publication do not render the subject matter recited in amended independent claim 12 anticipated or obvious. Claim 13 which depends from independent claim 12 is also not taught, suggested or disclosed by the Knuttel Patent, the Lee Patent and the Waelti Publication for at least the same reasons.

Thus, withdrawal of the rejections of these claims under 35 U.S.C. §§ 102(b) and 103(a), as applicable, is respectfully requested.

**B. Independent Claim 14 and Dependent Claim(s)**

Applicants' invention, as recited in amended independent claim 14, relates to an apparatus for irradiating a sample, which comprises, *inter alia*:

- a) an interferometer forwarding an electromagnetic radiation; and
- b) a sample arm receiving the electromagnetic radiation, the sample arm including an arrangement which is configured to produce at least two radiations from the electromagnetic radiation so as to irradiate the sample, and to delay a first radiation of the at least two radiations with respect to a second radiation of the at least two radiations, wherein **the arrangement has at least one of:**
  - **an optical section with a refractive index of at least 1.5, the optical section being structured to propagate the at least two radiations, or**
  - **a first section which has silicon, the first section being structured to propagate the at least two radiations.**

Applicants respectfully assert that the Knuttel Patent and the Lee Patent do not teach or suggest, much less disclose **an arrangement of a sample arm (configured to produce two radiations so as to irradiate as**

**sample) having (i) a first optical section with a refractive index of at least 1.5, or (ii) a second section with has silicon (whereas one or more of such sections being structured to propagate the at least two radiations), as recited in amended independent claim14 of the above-identified application.**

As an initial matter, Applicants respectfully assert that the Knuttel Patent does not teach or suggest **the optical section with a refractive index of at least 1.5**. In the prior Office Action, the Examiner admitted that the Knuttel Patent “fails to teach the specifics such as the index of reflection of the lens or holographic plate ... ,” but contends that it would have been obvious to one having ordinary skill in the art to do so. (Office Action dated March 23, 2007, p. 25, Ins. 14-19). Applicants respectfully disagree. The Examiner has not provided any evidence whatsoever to support this contention that it would be obvious to provide *the optical section with a refractive index of at least 1.5*. If the Examiner is basing his belief on a personal knowledge, Applicants respectfully request that the Examiner furnish an affidavit or declaration in support thereof, and provide Applicants an opportunity to present their own evidence, if appropriate. (See 37 C.F.R. § 1.104(d)(2)). In the absence of such declaration/affidavit or support of this subject matter to be provided in another reference, Applicants respectfully assert that the Knuttel Patent fails to teach or suggest **the optical section with a refractive index of at least 1.5**.

In addition, it is respectfully asserted that the Knuttel Patent does not teach or suggest **a first section which has silicon**. In the prior Office Action, the Examiner admitted that the Knuttel Patent does not teach the material of the plate. (See *id.*, p. 25, Ins. 14-16). However, the Examiner has not point to

any section of the Knuttel Patent or any other reference as allegedly providing any similar materials to a section of the arrangement which has silicon. Indeed, neither the Examiner nor the Knuttel Patent even remotely mention the use of silicon by others in a section of the arrangement.

Turning to the Lee Patent, the Examiner now contends that the Lee Patent discloses silicon in its fibers, and thus alleges that the Lee Patent anticipates independent claim 14. (See Final Office Action, p. 6, In. 9). However, Applicants respectfully assert that the Lee Patent does not disclose the use of silicon. Indeed, the term “silicon” is not even mentioned in the entire specification or the claims of the Lee Patent. The Examiner does not point to any section of the Lee Patent or any other reference as allegedly providing any similar materials in a section of the arrangement which has silicon.

Thus, Applicants respectfully submit that the Knuttel Patent and the Lee Patent do not render the subject matter recited in independent claim 14 either anticipated or obvious. Claims 15, 18, 19 and 20 which depends from such independent claim 14 are also not taught, suggested or disclosed by the Knuttel Patent or the Lee Patent.

Thus, withdrawal of the rejections of these claims under 35 U.S.C. §§ 102(b) and 103(a) is respectfully requested.

C. Claim 32 and Dependent Claim(s)

Applicants' invention, as recited in amended independent claim 32, relates to an apparatus for obtaining information associated with a sample, which comprises, *inter alia*:

a first arrangement configured to separating at least one first electro-magnetic radiation into a first radiation and a second radiation forwarded to a sample, wherein the first and second radiations having different path lengths;

a second arrangement configured to received third and fourth radiations from the sample associated with the first and second radiations and a fifth radiation received from a reference, and generate at least one interference information as a function of the third, fourth and fifth radiations; and

**a third arrangement configured to generate data corresponding to an amount of a ranging depth within the sample associated with the second arrangement, wherein a difference between the path lengths of the first and second radiations is equal or greater than the ranging depth.**

Applicants respectfully assert that the Knuttel Patent in no way teaches or suggests **a third arrangement configured to generate data corresponding to an amount of a ranging depth within the sample associated with the second arrangement**, wherein a difference between the path lengths of the first and second radiations is equal or greater than the ranging depth, as recited in independent claim 32 of the above-identified application.

In the final Office Action, the Examiner points to Fig. 7, element 175 of the Waelti Publication as allegedly disclosing Applicants' claimed third arrangement as recited in independent claim 32. The Examiner states that the Waelti Publication shows a path delay difference in this figure and via element 175, and then contends that "the ranging depth is equal to the path delay difference." (Final Office Action, p. 7, Ins. 12-13). Applicants respectfully disagree. Indeed, it is respectfully asserted that the path delay difference, as described in the Waelti Publication, is not the same and should not be equated to the ranging depth as recited in independent claim 32.

In particular, as known to those having ordinary skill in the art of optical coherence tomography, the term “ranging depth” is understood to be, e.g., a maximum operating path length for a given interferometer configuration. This is very different from the path delay difference as allegedly disclosed in the Waelti Publication, and one having ordinary skill in the art would not equate such vastly different phrases to one another. Further, Applicants respectfully assert that the Waelti Publication does not even mention “ranging depth” in the specification thereof, and the Examiner does not contend that it does. Thus, the Waelti Publication fails to teach, suggest or disclose a third arrangement that is configured to generate data corresponding to an amount of a ranging depth within the sample associated with the second arrangement, wherein a difference between the path lengths of the first and second radiations is equal or greater than the ranging depth, as recited in independent claim 32 of the above-identified application.

Thus, for at least these reasons, Applicants respectfully submit that the Knuttel Patent, the Lee Patent and the Waelti Publication do not render the subject matter recited in independent claim 32 anticipated or obvious. Claims 33-35 which depends from independent claim 32 are also not taught, suggested or disclosed by the Waelti Publication for at least the same reasons. Further, the Examiner has not pointed to any section of the Waelti Publication as allegedly teaching or suggesting the subject matter recited in claims 33-35, and merely made such allegation that the subject matter of claims 33 would be obvious, without any support for such contention.

Thus, withdrawal of the rejections of these claims under 35 U.S.C. §§ 102(b) and 103(a), as applicable, is respectfully requested.

**VI. NEW CLAIM 36**

New 36 which depends from independent claim 32 has been added above to cover a certain exemplary embodiments of Applicants' invention. Support for these new claims can be found in the originally-filed specification and drawings. Applicants respectfully assert that new claim 36 is allowable over the Knuttel Patent, the Li Patent and the Waelti Publication. It is respectfully requested that a confirmation of patentability of this claim be provided in the next communication for this application to Applicants' representatives.

**VII. CONCLUSION**

In light of the foregoing, Applicants respectfully submit that the pending claims are in condition for allowance. Prompt reconsideration and allowance of the present application are therefore earnestly solicited. The Examiner is invited to contact the undersigned to expedite the prosecution of this application if any issues remain outstanding.

Respectfully submitted,

Dated: March 17, 2008

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